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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/974,023	10/10/2001	Dennis R. Kling	RAK-001.02	7890

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EXAMINER

PHAM, HOAI V

ART UNIT PAPER NUMBER

2814

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/974,023

Applicant(s)

KLING ET AL.

Examiner

Hoai V Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12,21,22 and 24-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12,21,22 and 24-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the decoupling capacitor includes a pair of pads and the pattern of circuit connections includes a ground plane and a power plane, wherein one pad is coupled to the ground plane and the other pad is coupled to the power plane must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 32 is objected to because of the following informalities:  
  
Change "plurality of circuit devices are" to --the circuit device is-- because the decoupling capacitor (14) is electrically connected with only one of the plurality of circuit devices (see fig. 1).  
  
Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The phrase “the interconnect layer includes a power plane and a ground plane, and wherein the decoupling capacitor connects in parallel between the power and ground planes” is not enabled. It is not understood how the decoupling capacitor can be connected in parallel between the power and ground planes while fig. 2 shows the power and ground planes connect to the same pad (26).

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 12, 21, 25, 30, and 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Takashi et al. [JP. 406,295,981A] previously applied.

Takashi et al. (figure 3, pages 3-4) discloses a device for interconnecting a plurality of circuit devices (13), comprising:

a decoupling capacitor (24) mounted on a first surface; and

an interconnect layer (17) having a pattern of circuit connections (18) and being formed over the decoupling capacitor, whereby electrical connections of the decoupling capacitor are embedded within the interconnect layer and the interconnect layer is disposed between the decoupling capacitor and the plurality of circuit devices,

and whereby the pattern of circuit connections of the interconnect layer is coupled to the decoupling capacitor and the plurality of circuit devices.

With respect to claim 21, Takashi et al. discloses that the circuit connections include a signal plane, a power plane and a ground plane.

With respect to claim 25, Takashi et al. discloses the interconnecting layer comprises of aluminum.

With respect to claim 30, Takashi et al. discloses that a plurality of capacitors mounted on the first surface.

With respect to claim 32, Takashi et al. discloses that the circuit device (13) is in electrical communication with the decoupling capacitor (fig. 1).

With respect to claim 33, Takashi et al. does not mention that the decoupling capacitor includes a pair of pads and the pattern of circuit connections includes a ground plane and a power plane, wherein one pad is coupled to the ground plane and the other pad is coupled to the power plane. However, Takashi et al. shows the same structure of applicant invention. Therefore, it is inherent to one having ordinary skill in

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the art would recognized that the decoupling capacitor includes a pair of pads in order to connect the ground plane to one pad and the power plane to the other pad.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 24, 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi et al. [JP. 406295981A] in view of Tuckerman [U.S. Pat. 5,274,270].

With respect to claims 24 and 27, Takashi et al. does not mention that the decoupling capacitor comprises a silicon containing dielectric material or silicon base. However, Tuckerman shows that the decoupling capacitor comprises a silicon containing dielectric material or silicon base (48) to improve the pinhole-free properties

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of capacitor dielectric and improve electrical performance (col. 4, lines 36-43).

Therefore, it would have been obvious to the skilled in the art to use the silicon containing dielectric material or silicon base for the decoupling capacitor dielectric as taught by Tuckerman in the device of Takashi et al. to improve the pinhole-free properties of capacitor dielectric and improve electrical performance.

With respect to claim 26, Takashi et al. does not mention that the interconnecting layer comprises of aluminum or copper. However, Tuckerman shows that the interconnecting layer (76, 77) comprises of copper (col. 6, lines 4-13). Therefore, it would have been obvious to the skilled in the art to use copper as taught by Tuckerman in the device of Takashi et al. to form the interconnecting layer since such material is a good conductor.

11. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi et al. [JP. 406295981A] in view of Smith [U.S. Pat. 4,890,192].

Takashi et al. does not mention the decoupling capacitor having a capacitance of  $50 \text{ nf/cm}^2$ . However, Smith shows the decoupling capacitor having a capacitance of  $50 \text{ nf/cm}^2$  (col. 1, lines 8-10). Therefore, it would have been obvious to the skilled in the art to form the decoupling capacitor having the capacitance of  $50 \text{ nf/cm}^2$  as taught by Smith in the device of Takashi et al. since such capacitance is well known for use in high performance electronic devices as taught by Smith.

12. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi et al. [JP. 406295981A] in view of Eichelberger [U.S. Pat. 5,841,193].

Takashi et al. does not show that at least one resistor mount on the first surface. However, Eichelberger shows that a resistor chip (102) (col. 8, lines 55-57). Therefore, Therefore, it would have been obvious to the skilled in the art to have at least one resistor mount on the first surface as taught by Eichelberger in the device of Takashi et al. for use in a filter system and to reduce noise.

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 12, 21, 23-33 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that "Takashi et al. fail to disclose a device for interconnecting a plurality of circuit devices having a decoupling capacitor mounted on a surface and an interconnect layer formed over said decoupling capacitor, whereby electrical connections of said decoupling capacitor are embedded within the interconnect layer and whereby circuit connections of the interconnect layer couple to the decoupling capacitor and the plurality of circuit devices". This argument is not persuasive because Takashi et al. (fig. 3) clearly disclose a device for interconnecting a plurality of circuit devices (13) having a decoupling capacitor (24) mounted on a surface and an interconnect layer (18) formed over said decoupling capacitor, whereby electrical connections of said decoupling capacitor are embedded within the interconnect layer and whereby circuit connections of the interconnect layer couple to the decoupling capacitor and the plurality of circuit devices.



In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the circuit devices 20 are not electrically connected to the support base 12. The decoupling capacitors are separate components and the interconnect layer is formed over the decoupling capacitors (Figs. 4-7). The decoupling capacitors are mounted on a surface, such as support base 12. A filler can be deposited between the components mounted on the surface to provide mechanical support (page 13, lines 16-20), yet allowing for electrical connection to the pads of the decoupling capacitors) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### **Conclusion**

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

15. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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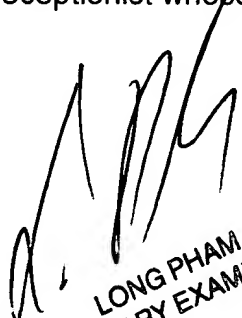
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai V Pham whose telephone number is 703-308-6173. The examiner can normally be reached on 6:30A.M. - 6:00P.M..

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

18. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

HP  
Hoai Pham  
May 9, 2003



LONG PHAM  
PRIMARY EXAMINER